IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT, Plaintiff, v. ZTE CORPORATION, ZTE (USA) INC., AND ZTE (TX), INC. Defendants.	§ § § § § § § § § § § § §	CIVIL ACTION NO. 6:20-cv-488-ADA **JURY TRIAL DEMANDED**

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this First Amended Complaint for Patent Infringement ("Complaint") against Defendants ZTE Corporation, ZTE (USA), Inc. and ZTE (TX), Inc. (collectively "ZTE" or "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 605 Austin Ave, Ste 6, Waco, TX 76701.

3. On information and belief, Defendant Zhongxing Telecommunications Equipment (abbreviated as "ZTE") Corporation ("ZTE Corp.) is a Chinese corporation that does business in Texas, directly or through intermediaries, with a principal place of business at ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen China.

4. On information and belief, Defendant ZTE (USA) Inc. is a New Jersey corporation that does business in Texas, directly or through intermediaries, with a principal place of business in business in Richardson, Texas.

5. On information and belief, Defendant ZTE (TX) Inc. is a Texas corporation that does business in Texas, directly or through intermediaries, with a principal place of business in business in Austin, Texas.

6. All of the Defendants operate under and identify with the trade name "ZTE." Each of the Defendants may be referred to individually as a "ZTE Defendant" and, collectively, Defendants may be referred to below as "ZTE" or as the "ZTE Defendants."

JURISDICTION AND VENUE

7. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§271, 281, 284, and 285.

8. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

9. This Court has specific and general personal jurisdiction over each ZTE Defendant pursuant to due process and/or the Texas Long Arm Statute, because each ZTE Defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each ZTE Defendant would not offend traditional notions of fair play and substantial justice because ZTE has established minimum contacts with the forum. For example, on information and belief, ZTE Defendants have committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

10. Jurisdiction is also proper because ZTE Defendants place goods and/or services, including Accused Products, into the stream of commerce knowing they will end up in Texas. Indeed, ZTE Defendants take actions purposefully directed toward Texas to place goods and/or services into the stream of commerce here.

11. On information and belief, ZTE Corp. sells and/or licenses Accused Products directly to a company headquartered in Richardson, Texas—ZTE (USA) Inc.—and ships them to that company's headquarters in Richardson, Texas.

12. On Information and belief, ZTE Corp. targets other Texas customers through ZTE (USA) Inc.'s website and ships Accused Products to customers in Texas.

13. ZTE Corp. specifically targets Accused Products at individuals and companies in Texas at least by selling and/or licensing Accused Products directly to ZTE (USA) Inc., a consumer and distributor of Accused Products manufactured by ZTE Corp., and by shipping Accused Products to ZTE (USA) Inc. for distribution in Texas.

14. On information and belief, ZTE Corp. assists ZTE (USA) Inc. with troubleshooting or other technical support of ZTE Corp. equipment sold in the United States, including Texas.

15. Both ZTE Corp. and ZTE (USA) Inc. have issued releases from Richardson, Texas marketing ZTE products, including Accused Products. These releases are hosted on ZTE Corp.'s website and include a "ZTE Corporation" copyright.

16. On November 20, 2019, ZTE (USA) Inc. issued a release from "RICHARDSON, Texas" advertising Black Friday Deals on several products, including Blade 10 and Axon 10 Pro. The release explains that "ZTE USA" is "headquartered in Richardson, Texas," provides information to directly contact ZTE (USA) Inc. and indicates that "shoppers can enjoy free

shipping and easy 30 day returns for ZTE products at www.zteusa.com. The release is hosted on ZTE Corp.'s website and includes a "ZTE Corporation" copyright.

17. On October 15, 2019, ZTE Corp. issued a release from "RICHARDSON, Texas" announcing that Blade Vantage 2 would be available in "Verizon stores across the U.S." and would "operate on Verizon's national network."

18. On information and belief, most imports from ZTE Corp. to the United States are shipments to ZTE (USA) Inc.

19. On information and belief, most imports received by ZTE (USA) Inc. are imports from ZTE Corp.

20. On information and belief, ZTE Corp. regularly ships goods to ZTE (USA) Inc.'s headquarters at 2425 N Central Expressway in Richardson, Texas.

21. On information and belief, ZTE Corp. regularly ships goods to other addresses in Texas.

22. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and/or 1400(b). The ZTE Defendants have committed acts of infringement and have places of businesses in this District and/or are foreign entities for purpose of §1391. As non-limiting examples, ZTE (TX) has maintained a place of business at 7000 N MO-PAC EXPRESSWAY 200 AUSTIN, TX 7873; and, ZTE (USA) has maintained a place of business at 6500 River Place Blvd., Austin, TX 78730. ZTE Corporation also describes a "research-and-development center in Austin, Texas."[1]

[1] https://res-www.zte.com.cn/mediares/magazine/publication/tech_en/pdf/201009.pdf

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 7,489,929

23. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

24. On February 10, 2009, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,489,929 ("the '929 Patent"), entitled "HARD HANDOFF PROCEDURE FOR DEDICATED AND HIGH SPEED SHARED CHANNELS." A true and correct copy of the '929 Patent is attached as Exhibit A to this Complaint.

25. Brazos is the owner of all rights, title, and interest in and to the '929 Patent, including the right to assert all causes of action arising under the '929 Patent and the right to any remedies for the infringement of the '929 Patent.

26. ZTE makes, uses, sells, offers for sale, imports, and/or distributes, in the United States, communication products with LTE capabilities (collectively, the "Accused Products").

27. The Accused Products include the Macro Base Station (BS) series, including the ZXSDR BS8800, ZXSDR BS8900A, ZXSDR BS8900B base stations; LTE Modules, including ME3630 and ZM8620 modules; routers, including the MF279 router; and phones, including the Axon 10 Pro, Blade 10, Blade 10 Prime, Blade A7 Prime, Blade Vantage 2, Gabb Z1, Visible R2, ZFIVE G LTE, Avid 4, Overture 3, Blade X, Maven 3, Blade Z, and Blade X Max phones.

> ZTE Macro Base Station (BS) series include three types: large capacity indoor base station ZXSDR BS8800, modularized outdoor base station ZXSDR BS8900A, and large capacity outdoor base station ZXSDR BS8900B. Based on the distributed architecture, the baseband unit B8200 and a variety of indoor RF units RSUs are combined and assembled in the base station cabinet. Among them, the outdoor BSs can also provide transmission, lightning protection, power supply and batteries, and reserved room for other devices, supporting fully functional outdoor BS solutions.
> The products support ZTE unique 2T4R RF module, with a single module supporting 2 sectors or 2T4R, reducing cost and improving the performance of network; support power amplifier with high efficiency, contributing to very low power consumption; support GSM/ UMTS/LTE (GUL) multi-band multi-mode, saving CAPEX and OPEX significantly.

…

Large Capacity Indoor Macro BS ZXSDR BS8800 Highlights

Large Capacity: One BS8800 accommodates 2 BBUs and 12 RSUs, and connects with Remote Radio Unit (RRU) to support more cells.

Mature Application: Already being commercially applied in more than 100 countries. The excellent performance is guaranteed.

Modularized Outdoor Macro BS ZXSDR BS8900A Highlights

Modularized Design: Supports centralized or distributed cabinet installation according to the practical conditions.

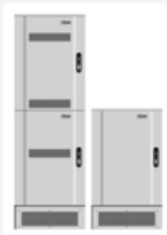
Cost Effective: BS8900A contains baseband units, RF units, lightning protection, power supply and battery, and reserved room for transmission device, providing cost-effective and fully functional outdoor site solution.

Large Capacity Outdoor Macro BS – ZXSDR BS8900B Highlights

All-in-One Solution: Single rack of BS8900B contains baseband units, radio modules, lightning protection, power supply and battery, and reserved room for transmission device, providing large capacity and fully functional outdoor site solution.

Large Capacity: Single rack accommodates 2 BBUs and 9 2T4R RSUs, and connects with Remote Radio Unit (RRU) to support more cells.

Large Capacity Outdoor Marco BS



Modularized Outdoor Macro BS

Large Capacity Indoor Macro BS

https://www.zte.com.cn/global/products/wireless/201903111103/Macro-Base-Station-Series

https://www.zteusa.com/products/m2m/zte-me3630

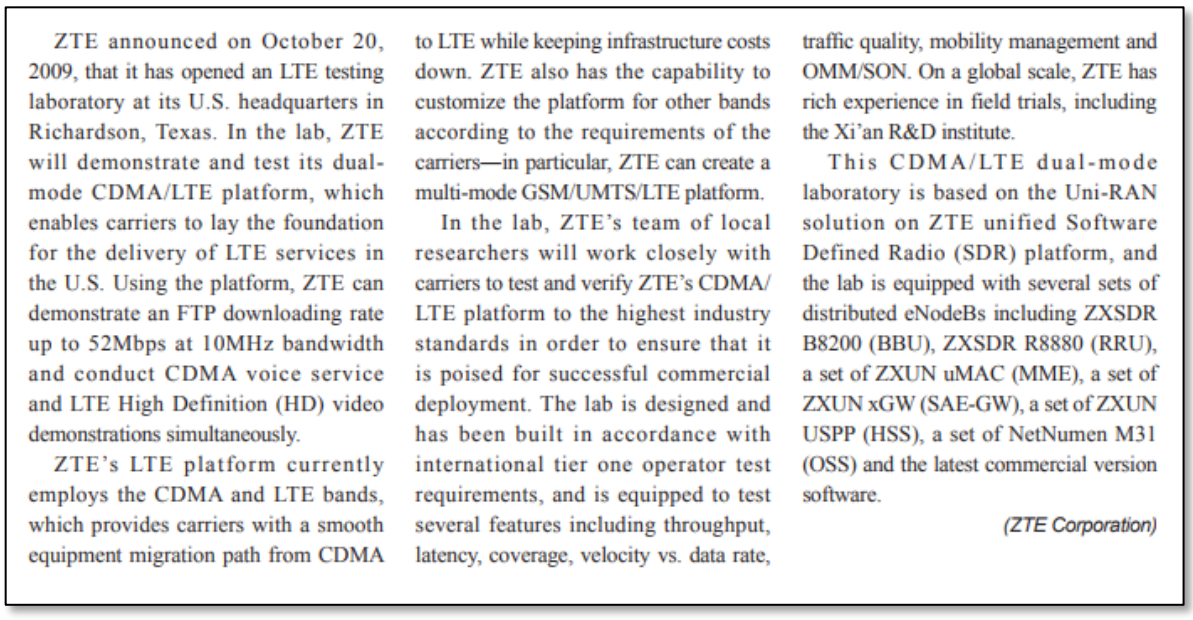
Frequencies	LTE/UMTS/GSM/FDD/TDD
Modes	LTE 4*4MIMO B2/4/7/38/41/66 DL 4CA,DL 3CA,DL 2CA;UL 2CA UMTS:B1/2/4/5/8 GSM:B2/3/5/8 FDD:1/2/3/4/5/7/8/12/13/17/18/19/20/25/26/28/30/66/71 TDD:B34/38/39/40/41(2535-2655MHz)

https://www.zteusa.com/products/all-phones/axon-10-pro.html

28. ZTE has deployed commercial LTE networks and built LTE trial networks for telecom operators in North America, and opened an LTE testing laboratory in Richardson, Texas

> ZTE has taken the lead in LTE development and has achieved significant breakthroughs in the industry. To date, the company has deployed five commercial LTE networks and built 40 LTE trial networks for leading telecom operators in Europe, North America, Asia-Pacific and MEA. With an aim to advance the telecommunications market into 4G technologies, ZTE will continue to drive innovation and introduce market-leading and cost-efficient solutions to the market.

https://www.zte.com.cn/global/about/news/350962.html



ZTE announced on October 20, 2009, that it has opened an LTE testing laboratory at its U.S. headquarters in Richardson, Texas. In the lab, ZTE will demonstrate and test its dual-mode CDMA/LTE platform, which enables carriers to lay the foundation for the delivery of LTE services in the U.S. Using the platform, ZTE can demonstrate an FTP downloading rate up to 52Mbps at 10MHz bandwidth and conduct CDMA voice service and LTE High Definition (HD) video demonstrations simultaneously.

ZTE's LTE platform currently employs the CDMA and LTE bands, which provides carriers with a smooth equipment migration path from CDMA to LTE while keeping infrastructure costs down. ZTE also has the capability to customize the platform for other bands according to the requirements of the carriers—in particular, ZTE can create a multi-mode GSM/UMTS/LTE platform.

In the lab, ZTE's team of local researchers will work closely with carriers to test and verify ZTE's CDMA/LTE platform to the highest industry standards in order to ensure that it is poised for successful commercial deployment. The lab is designed and has been built in accordance with international tier one operator test requirements, and is equipped to test several features including throughput, latency, coverage, velocity vs. data rate, traffic quality, mobility management and OMM/SON. On a global scale, ZTE has rich experience in field trials, including the Xi'an R&D institute.

This CDMA/LTE dual-mode laboratory is based on the Uni-RAN solution on ZTE unified Software Defined Radio (SDR) platform, and the lab is equipped with several sets of distributed eNodeBs including ZXSDR B8200 (BBU), ZXSDR R8880 (RRU), a set of ZXUN uMAC (MME), a set of ZXUN xGW (SAE-GW), a set of ZXUN USPP (HSS), a set of NetNumen M31 (OSS) and the latest commercial version software.

(ZTE Corporation)

http://www.zte-deutschland.de/pub/endata/magazine/ztetechnologies/2009year/no11/200912/P020091222462632602444.pdf

29. Long Term Evolution (LTE) with Evolved Universal Terrestrial Radio Access Network (E-UTRAN) is a type of telecommunication system. It defines how communication between intermediate and/or end nodes (e.g., user equipment (UE), mobile devices, data terminals, and/or base stations) occurs.

30. The figure below shows different types of handover processes performed by the Accused Products, including an inter-eNodeB Handover (e.g., X2 Handover) where handover takes place from a source base station to a target base station. An LTE product base station can handover another LTE product to a target LTE base station.

Figure 4-4 Intra-eNodeB Handover

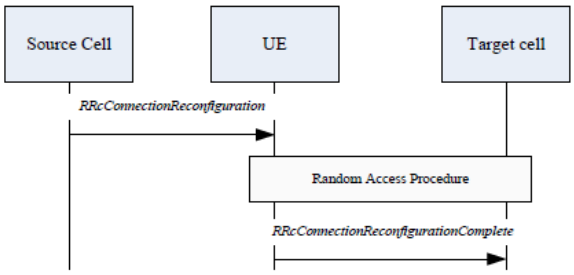
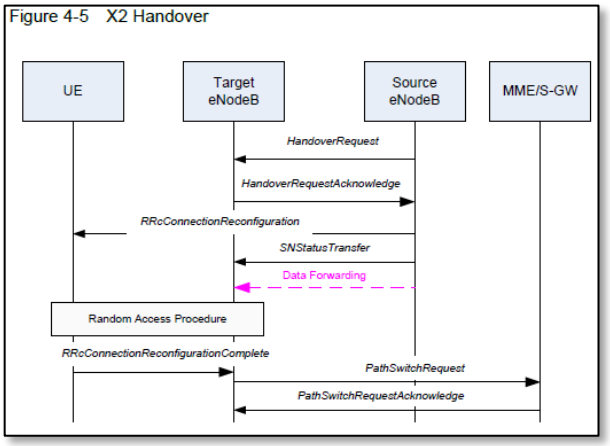
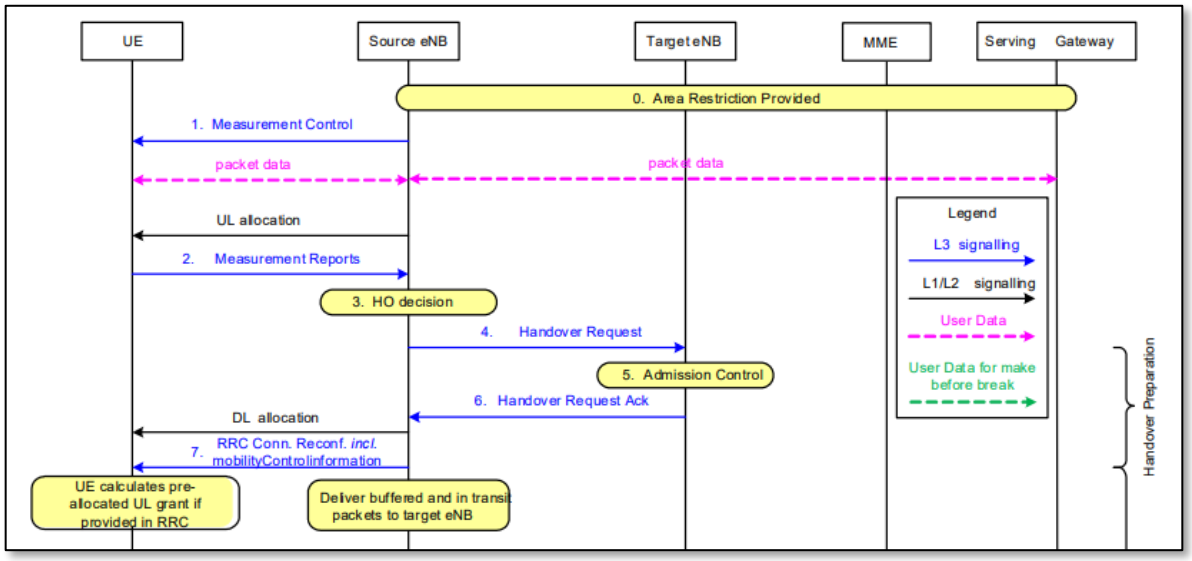


Figure 4-5 X2 Handover



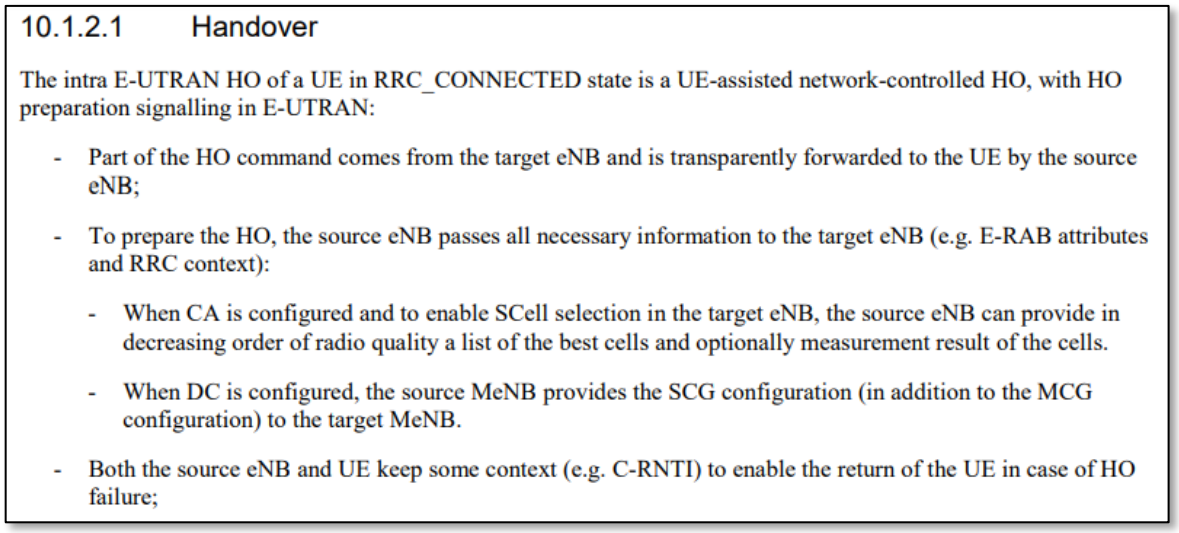
https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Pages 20-21).

31. LTE can offer communication between a UE (e.g., a mobile station) and a source eNodeB (e.g., a serving base station), as depicted in the figure below.



https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 113).

32. The UE can establish a communication link with a target eNodeB (e.g., a target base station) after handover from an existing link with the source eNodeB**.** UEs (e.g., mobile stations) monitor target eNodeBs, which control the handover process. LTE can support Intra-MME (Mobility Management Entity)/Serving Gateway Handover which includes handover where neither MME nor Serving Gateway changes. LTE mobility functionality is configured by the network and is carried out by eNodeBs that are in communication with and control of UEs.



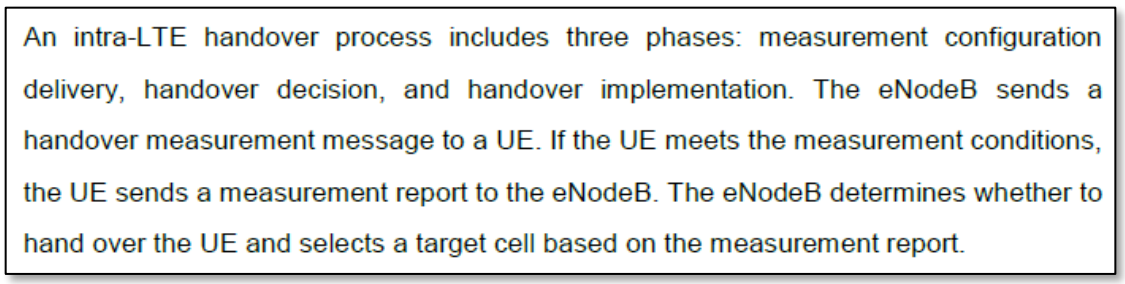
10.1.2.1 Handover

The intra E-UTRAN HO of a UE in RRC_CONNECTED state is a UE-assisted network-controlled HO, with HO preparation signalling in E-UTRAN:

- Part of the HO command comes from the target eNB and is transparently forwarded to the UE by the source eNB;
- To prepare the HO, the source eNB passes all necessary information to the target eNB (e.g. E-RAB attributes and RRC context):
  - When CA is configured and to enable SCell selection in the target eNB, the source eNB can provide in decreasing order of radio quality a list of the best cells and optionally measurement result of the cells.
  - When DC is configured, the source MeNB provides the SCG configuration (in addition to the MCG configuration) to the target MeNB.
- Both the source eNB and UE keep some context (e.g. C-RNTI) to enable the return of the UE in case of HO failure;

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 112).

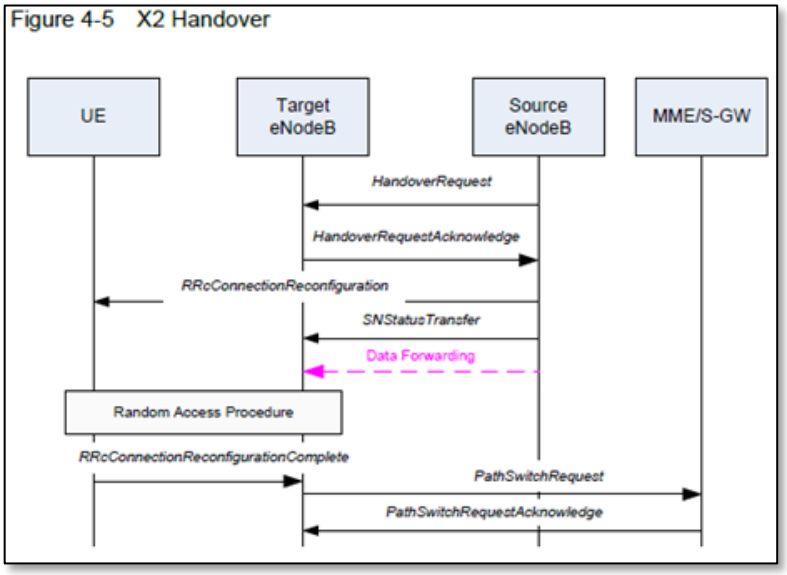
33. An LTE handover process can include three phases: measurement configuration delivery, handover decision, and handover implementation. UE performs neighboring cell measurements and sends details to a source eNodeB. Based on the measurement report from the UE, an eNodeB can determine whether to handover the UE and selects a target cell.



An intra-LTE handover process includes three phases: measurement configuration delivery, handover decision, and handover implementation. The eNodeB sends a handover measurement message to a UE. If the UE meets the measurement conditions, the UE sends a measurement report to the eNodeB. The eNodeB determines whether to hand over the UE and selects a target cell based on the measurement report.

https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 14).

34. After selecting the target base station from the UE measurement report, the source base station (e.g., the source eNodeB) can send a handover request to the target base station (e.g., the target eNodeB), as shown in the figure below.



https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 21).

35. The source eNodeB can receive measurement reports from UE via an established RRC connection, e.g., as shown below.

Below is a more detailed description of the intra-MME/Serving Gateway HO procedure:

0 The UE context within the source eNB contains information regarding roaming and access restrictions which were provided either at connection establishment or at the last TA update.

1 The source eNB configures the UE measurement procedures according to the roaming and access restriction information and e.g. the available multiple frequency band information. Measurements provided by the source eNB may assist the function controlling the UE's connection mobility.

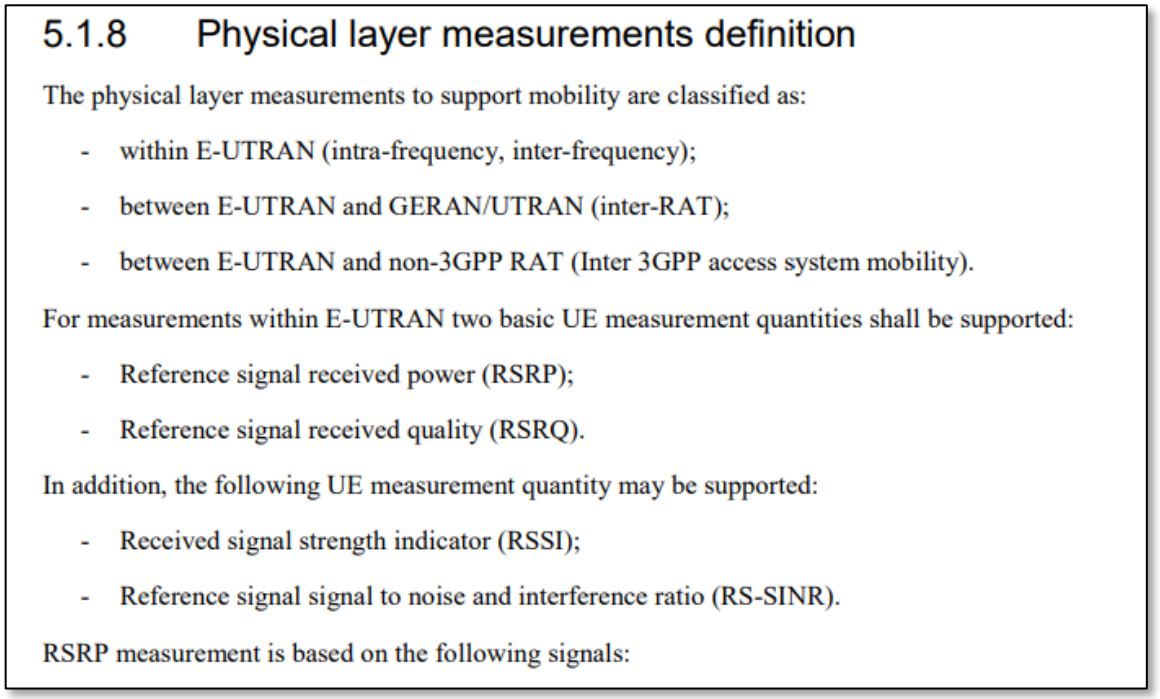
2 A MEASUREMENT REPORT is triggered and sent to the eNB.

3 The source eNB makes decision based on MEASUREMENT REPORT and RRM information to hand off the UE.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.

pdf (Page 113).

36. UEs can use measurement quantities such as RSRP, RSRQ, RSSI, etc. to support mobility. These measurement quantities include signal quality values from neighboring cells and can be provided in measurement reports to initiate handover.



5.1.8 Physical layer measurements definition

The physical layer measurements to support mobility are classified as:

- within E-UTRAN (intra-frequency, inter-frequency);
- between E-UTRAN and GERAN/UTRAN (inter-RAT);
- between E-UTRAN and non-3GPP RAT (Inter 3GPP access system mobility).

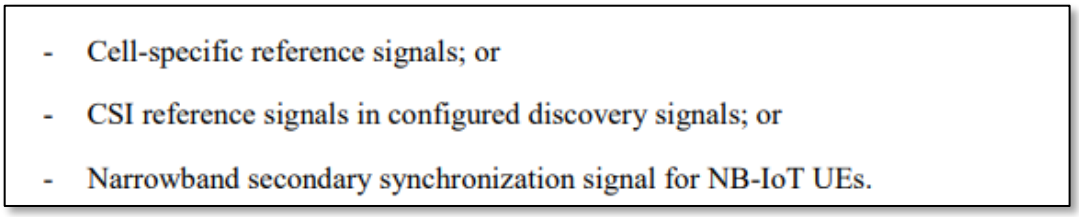
For measurements within E-UTRAN two basic UE measurement quantities shall be supported:

- Reference signal received power (RSRP);
- Reference signal received quality (RSRQ).

In addition, the following UE measurement quantity may be supported:

- Received signal strength indicator (RSSI);
- Reference signal signal to noise and interference ratio (RS-SINR).

RSRP measurement is based on the following signals:

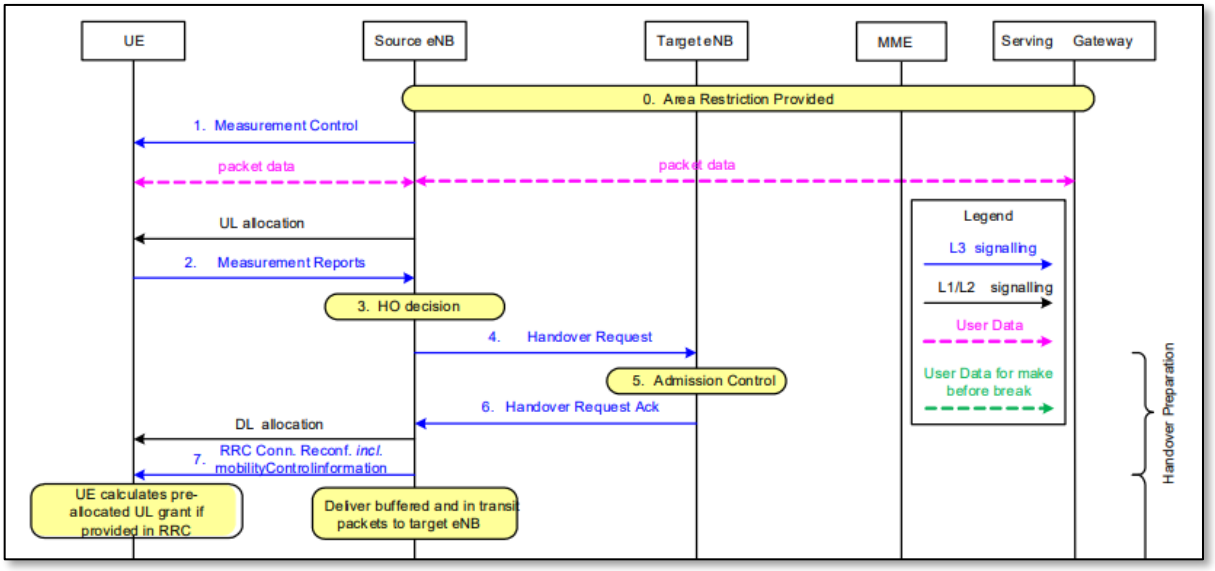


- Cell-specific reference signals; or
- CSI reference signals in configured discovery signals; or
- Narrowband secondary synchronization signal for NB-IoT UEs.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Pages 66-67).

37. Source eNodeBs can decide the selection of a target eNodeB on the basis of measurement reports. After this decision, the source eNodeB initiates the establishment of a new link between the UE and the target eNodeB by sending a Handover Request message. Resources allocated by a source eNodeB for a UE during an existing link are released upon confirmation of a successful handover of the UE to the target eNodeB. The confirmation can be received by

the source eNodeB from the target eNodeB in form of a UE CONTEXT RELEASE message.



https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 113).

38. A source eNodeB can decide the selection of a target eNodeB on the basis of Measurement Reports from a UE. After this decision, a Handover Request message can be sent to a target eNodeB with resource information required to prepare a target eNodeB for handover. The Handover Request message can include information to prepare a target eNodeB for handover. The target eNodeB responds with a Handover Request Acknowledgement message to

indicate successful completion of handover preparation.

2 A MEASUREMENT REPORT is triggered and sent to the eNB.

3 The source eNB makes decision based on MEASUREMENT REPORT and RRM information to hand off the UE.

4 The source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side (UE X2 signalling context reference at source eNB, UE S1 EPC signalling context reference, target cell ID, K_{eNB*}, RRC context including the C-RNTI of the UE in the source eNB, AS-configuration, E-RAB context and physical layer ID of the source cell + short MAC-I for possible RLF recovery). UE X2 / UE S1 signalling references enable the target eNB to address the source eNB and the EPC. The E-RAB context includes necessary RNL and TNL addressing information, and QoS profiles of the E-RABs.

5 Admission Control may be performed by the target eNB dependent on the received E-RAB QoS information to increase the likelihood of a successful HO, if the resources can be granted by target eNB. The target eNB configures the required resources according to the received E-RAB QoS information and reserves a C-RNTI and optionally a RACH preamble. The AS-configuration to be used in the target cell can either be specified independently (i.e. an "establishment") or as a delta compared to the AS-configuration used in the source cell (i.e. a "reconfiguration").

6 The target eNB prepares HO with L1/L2 and sends the HANDOVER REQUEST ACKNOWLEDGE to the source eNB. The HANDOVER REQUEST ACKNOWLEDGE message includes a transparent container to be sent to the UE as an RRC message to perform the handover. The container includes a new C-RNTI, target eNB security algorithm identifiers for the selected security algorithms, may include a dedicated RACH preamble, and possibly some other parameters i.e. access parameters, SIBs, etc. If RACH-less HO is configured, the container includes timing adjustment indication and optionally a preallocated uplink grant. The HANDOVER REQUEST ACKNOWLEDGE message may also include RNL/TNL information for the forwarding tunnels, if necessary.

NOTE: As soon as the source eNB receives the HANDOVER REQUEST ACKNOWLEDGE, or as soon as the transmission of the handover command is initiated in the downlink, data forwarding may be initiated.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Pages 113-114).

39. After completion of handover preparation, a UE receives an RRCConnectionReconfiguration message to start a handover procedure. Using resources included in this message, the UE can establish a link to synchronize a target eNodeB.

9 If RACH-less HO is not configured, after receiving the *RRCConnectionReconfiguration* message including the *mobilityControlInformation* , UE performs synchronisation to target eNB and accesses the target cell via RACH, following a contention-free procedure if a dedicated RACH preamble was indicated in the

mobilityControlInformation, or following a contention-based procedure if no dedicated preamble was indicated. UE derives target eNB specific keys and configures the selected security algorithms to be used in the target cell.

If RACH-less HO is configured, UE performs synchronisation to target eNB. UE derives target eNB specific keys and configures the selected security algorithms to be used in the target cell.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Pages 114).

40. Throughout an Intra-MME/Serving Gateway ("Intra-MME") handover, a UE maintains synchronization with only one eNodeB at any given time. Throughout such handovers, only one eNodeB actively exchanges packet data with the UE.

> 11 When the RACH-less HO is not configured and the UE has successfully accessed the target cell, the UE sends the *RRCConnectionReconfigurationComplete* message (C-RNTI) to confirm the handover, along with an uplink Buffer Status Report, and/or UL data, whenever possible, to the target eNB, which indicates that the handover procedure is completed for the UE. The target eNB verifies the C-RNTI sent in the *RRCConnectionReconfigurationComplete* message. The target eNB can now begin sending data to the UE.
>
> When the RACH-less HO is configured, after the UE has received uplink grant, the UE sends the *RRCConnectionReconfigurationComplete* message (C-RNTI) to confirm the handover, along with an uplink Buffer Status Report, and/or UL data, whenever possible, to the target eNB. The target eNB verifies the C-RNTI sent in the *RRCConnectionReconfigurationComplete* message. The target eNB can now begin sending data to the UE. The handover procedure is completed for the UE when the UE receives the UE contention resolution identity MAC control element from the target eNB.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 115).

41. After a target eNodeB synchronizes (over a new link with UE), it transmits a Context Release message to a source eNodeB. This message informs the success of a handover from a source eNodeB to a target eNodeB and triggers the release of resources by the source eNodeB. In this manner, a new link is established between a UE and a target eNodeB before releasing the existing link between a UE and a source eNodeB.

> 17 By sending the UE CONTEXT RELEASE message, the target eNB informs success of HO to source eNB and triggers the release of resources by the source eNB. The target eNB sends this message after the PATH SWITCH REQUEST ACKNOWLEDGE message is received from the MME.
>
> 18 Upon reception of the UE CONTEXT RELEASE message, the source eNB can release radio and C-plane related resources associated to the UE context. Any ongoing data forwarding may continue.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 115).

42. After receiving a measurement report from a UE, the source eNodeB can select a target eNodeB for a Handover Decision (e.g., HO Decision).

> An intra-LTE handover process includes three phases: measurement configuration delivery, handover decision, and handover implementation. The eNodeB sends a handover measurement message to a UE. If the UE meets the measurement conditions, the UE sends a measurement report to the eNodeB. The eNodeB determines whether to hand over the UE and selects a target cell based on the measurement report.

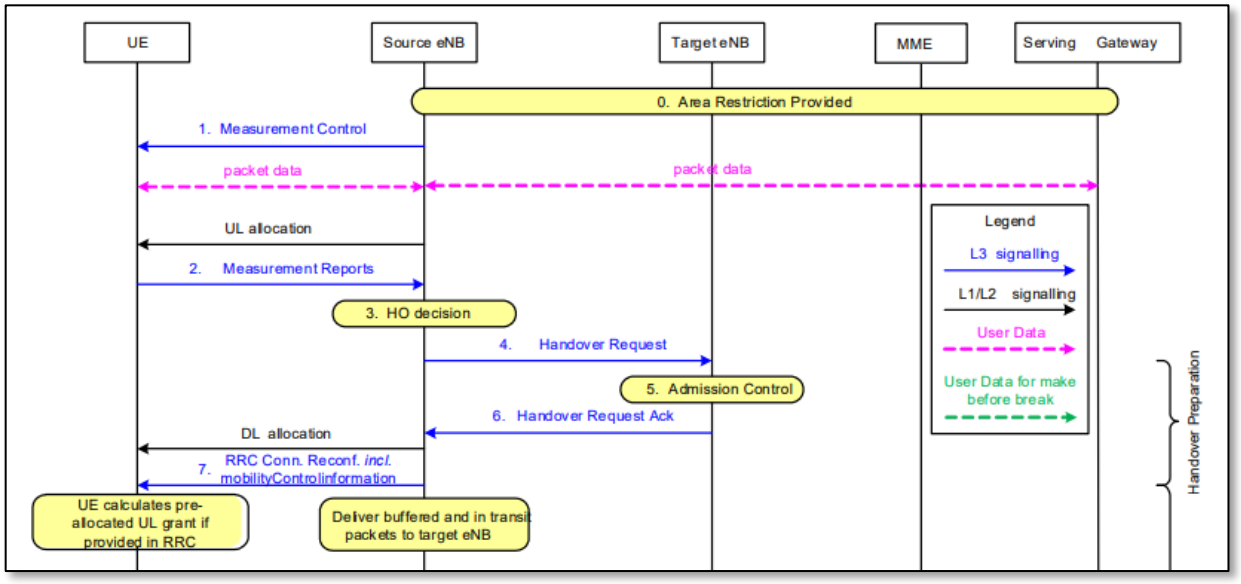
https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 14).

43. Base stations, including the Accused Products, receive a measurement report from a UE including a list of target base stations. A source base station selects the most suitable target base station from the said list to initiate the handover process.

> 2 A MEASUREMENT REPORT is triggered and sent to the eNB.
>
> 3 The source eNB makes decision based on MEASUREMENT REPORT and RRM information to hand off the UE.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 113).

44. A selection of a target eNodeB on the basis of a UE measurement report is known as a Handover Decision (e.g., HO Decision), causing a determination of a handoff requirement between a source eNodeB and a target eNodeB.



https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 113).

45. After selecting a target base station from a UE measurement report, a source base station (e.g., a source eNodeB) can send a handover request to a target base station (e.g., the target eNodeB).

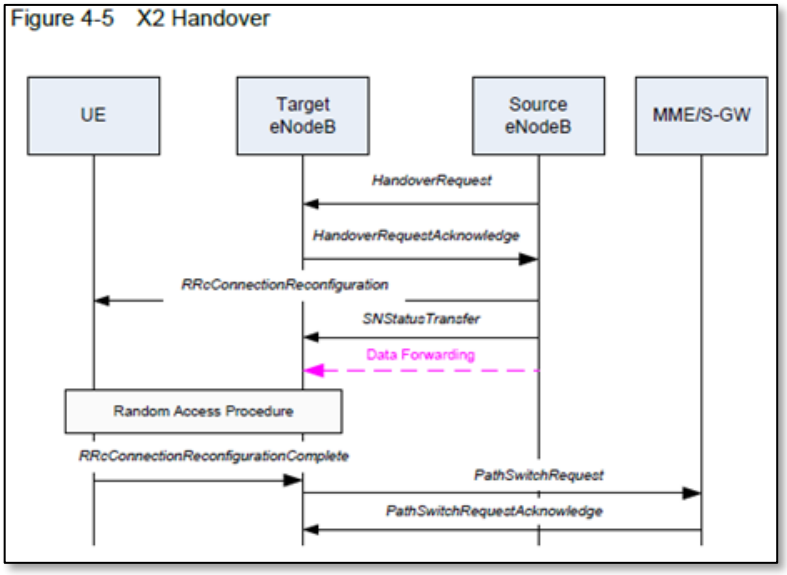
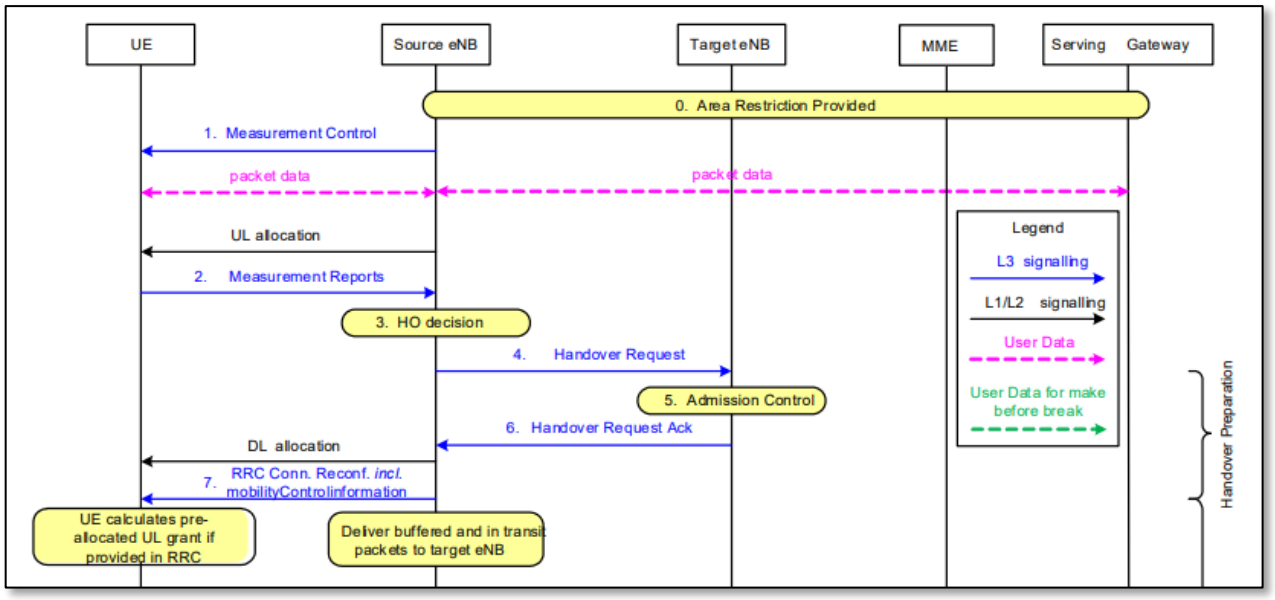


Fig. 1

https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 21).

46. The source eNodeB transmits a Handover Request to a selected target eNodeB for initiating handover preparation. The Handover Request message includes information to prepare target eNodeB for handover.



https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.03.00_60/ts_136300v150300p.pdf (Page 113).

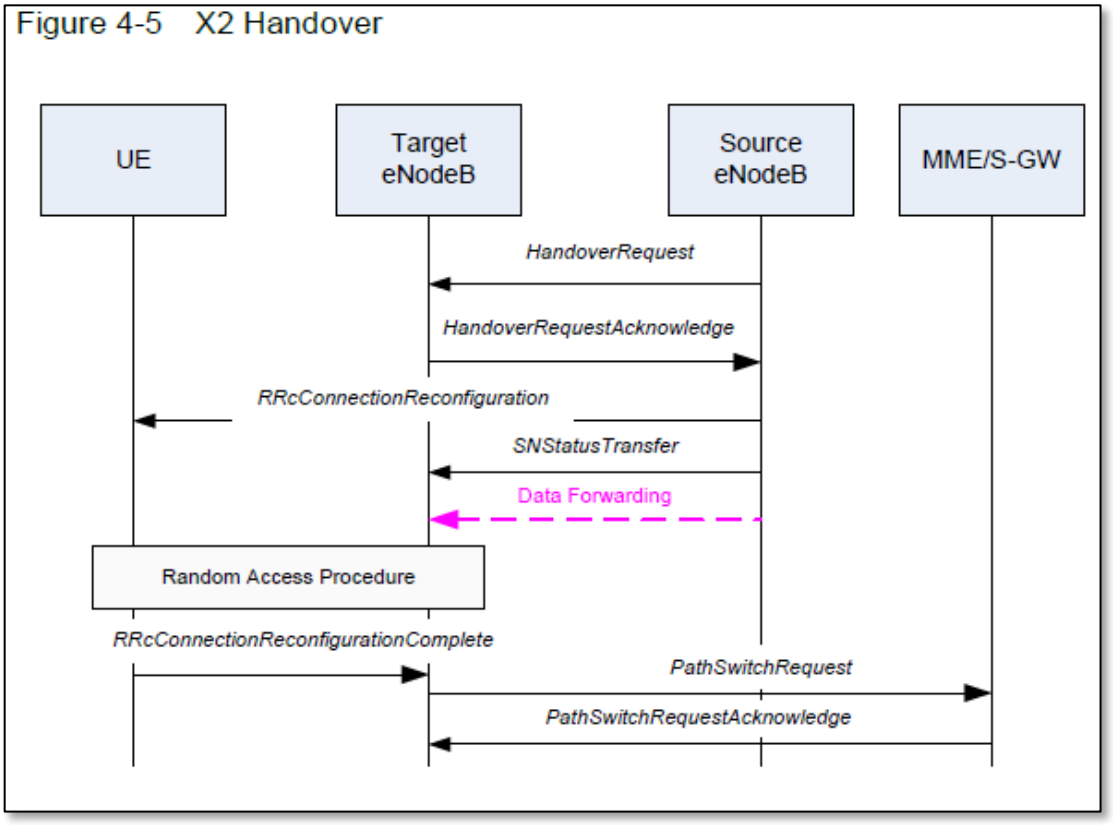
2 A MEASUREMENT REPORT is triggered and sent to the eNB.

3 The source eNB makes decision based on MEASUREMENT REPORT and RRM information to hand off the UE.

4 The source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side (UE X2 signalling context reference at source eNB, UE S1 EPC signalling context reference, target cell ID, K_{eNB*}, RRC context including the C-RNTI of the UE in the source eNB, AS-configuration, E-RAB context and physical layer ID of the source cell + short MAC-I for possible RLF recovery). UE X2 / UE S1 signalling references enable the target eNB to address the source eNB and the EPC. The E-RAB context includes necessary RNL and TNL addressing information, and QoS profiles of the E-RABs.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Pages 113-114).

47. The target eNodeB responds with a Handover Request Acknowledgement message when the Handover preparation is completed successfully.



https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 21).

> The target eNodeB prepares for L1/L2 handover, establishes the user-plane path for data forwarding, and sends a HANDOVER REQUEST ACKNOWLEDGE message to the source eNodeB. If data forwarding is required, a path for uplink data forwarding and a path for downlink data forwarding are established for each E-RAB. The HANDOVER REQUEST ACKNOWLEDGE message contains a container, which contains an RRC CONNECTION RECONFIGURATION message with *MobilityControlInfo* IE contained in the message.

https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 22).

48. The Handover Request Acknowledgement message confirms a successful handover preparation.

The source eNB sends a HANDOVER REQUEST to the target eNB including the bearers to be setup by the target ENB.

The handover preparation phase is finished upon the reception of the HANDOVER REQUEST ACKNOWLEDGE message in the source eNB, which includes at least radio interface related information (HO Command for the UE), successfully established E-RAB(s) and failed established E-RAB(s).

In case the handover resource allocation is not successful (e.g. no resources are available on the target side) the target eNB responds with the HANDOVER PREPARATION FAILURE message instead of the HANDOVER REQUEST ACKNOWLEDGE message.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 254).

49. After completion of handover preparation, the source eNodeB transmits an RRCConnectionReconfiguration message towards the UE. An RRCConnectionReconfiguration message is a command to modify an RRC connection and includes parameters related to mobility and resource allocation to perform handover. The UE uses this information to synchronize with the target eNodeB.

– ***RRCConnectionReconfiguration***

The *RRCConnectionReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) including any associated dedicated NAS information and security configuration.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/15.08.00_60/ts_136331v150800p.pdf (Page 344).

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7 The target eNB generates the RRC message to perform the handover, i.e. *RRCConnectionReconfiguration* message including the *mobilityControlInformation*, to be sent by the source eNB towards the UE. The source eNB performs the necessary integrity protection and ciphering of the message.

The UE receives the *RRCConnectionReconfiguration* message with necessary parameters (i.e. new C-RNTI, target eNB security algorithm identifiers, and optionally dedicated RACH preamble, target eNB SIBs, etc.) and is commanded by the source eNB to perform the HO. If RACH-less HO is configured, the *RRCConnectionReconfiguration* includes timing adjustment indication and optionally preallocated uplink grant for accessing the target eNB. If preallocated uplink grant is not included, the UE should monitor PDCCH of the target eNB to receive an uplink grant. The UE does not need to delay the handover execution for delivering the HARQ/ARQ responses to source eNB.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 114).

50. The RRCConnectionReconfiguration message received by a UE includes an uplink grant for accessing the target eNodeB. This allows the UE to perform synchronization

with the target eNodeB and access it later. In this manner, uplink synchronization for the target base station takes place. As a result, the target eNodeB can communicate with the UE.

> 7 The target eNB generates the RRC message to perform the handover, i.e. *RRCConnectionReconfiguration* message including the *mobilityControlInformation*, to be sent by the source eNB towards the UE. The source eNB performs the necessary integrity protection and ciphering of the message.
>
> The UE receives the *RRCConnectionReconfiguration* message with necessary parameters (i.e. new C-RNTI, target eNB security algorithm identifiers, and optionally dedicated RACH preamble, target eNB SIBs, etc.) and is commanded by the source eNB to perform the HO. If RACH-less HO is configured, the *RRCConnectionReconfiguration* includes timing adjustment indication and optionally preallocated uplink grant for accessing the target eNB. If preallocated uplink grant is not included, the UE should monitor PDCCH of the target eNB to receive an uplink grant. The UE does not need to delay the handover execution for delivering the HARQ/ARQ responses to source eNB.

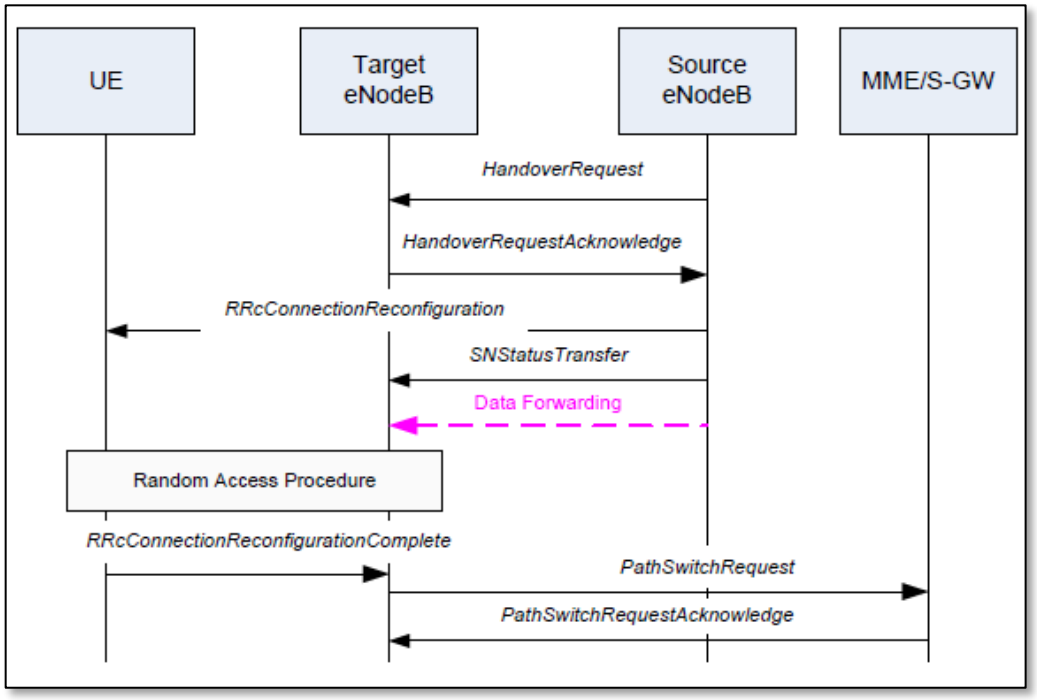
https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 114).

> 9 If RACH-less HO is not configured, after receiving the *RRCConnectionReconfiguration* message including the *mobilityControlInformation* , UE performs synchronisation to target eNB and accesses the target cell via RACH, following a contention-free procedure if a dedicated RACH preamble was indicated in the

> *mobilityControlInformation*, or following a contention-based procedure if no dedicated preamble was indicated. UE derives target eNB specific keys and configures the selected security algorithms to be used in the target cell.
>
> If RACH-less HO is configured, UE performs synchronisation to target eNB. UE derives target eNB specific keys and configures the selected security algorithms to be used in the target cell.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Pages 114).

51. After successful synchronization of the UE with the target eNodeB over the new link, the target eNodeB receives an RRCConnectionReconfigurationComplete message (or, at least one signal over the new link) from the UE directly.



https://www.scribd.com/document/405558309/ZTE-LR14-LTE-FDD-Handover-Feature-Guide-V3-20-30-20141225-pdf (Page 21).

52. The RRCConnectionReconfigurationComplete message indicates the establishment of a new link between the UE and the target eNodeB and successful handover from a source eNodeB to a target eNodeB.

> 11 When the RACH-less HO is not configured and the UE has successfully accessed the target cell, the UE sends the *RRCConnectionReconfigurationComplete* message (C-RNTI) to confirm the handover, along with an uplink Buffer Status Report, and/or UL data, whenever possible, to the target eNB, which indicates that the handover procedure is completed for the UE. The target eNB verifies the C-RNTI sent in the *RRCConnectionReconfigurationComplete* message. The target eNB can now begin sending data to the UE.
>
> When the RACH-less HO is configured, after the UE has received uplink grant, the UE sends the *RRCConnectionReconfigurationComplete* message (C-RNTI) to confirm the handover, along with an uplink Buffer Status Report, and/or UL data, whenever possible, to the target eNB. The target eNB verifies the C-RNTI sent in the *RRCConnectionReconfigurationComplete* message. The target eNB can now begin sending data to the UE. The handover procedure is completed for the UE when the UE receives the UE contention resolution identity MAC control element from the target eNB.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 115).

53. By sending a UE CONTEXT RELEASE message, the target eNodeB informs the success of HO to the source eNodeB and triggers the release of resources by the source eNodeB.

In this manner, a link between the UE and the source eNodeB hands off to a new link between the UE and target eNodeB.

> 17 By sending the UE CONTEXT RELEASE message, the target eNB informs success of HO to source eNB and triggers the release of resources by the source eNB. The target eNB sends this message after the PATH SWITCH REQUEST ACKNOWLEDGE message is received from the MME.
>
> 18 Upon reception of the UE CONTEXT RELEASE message, the source eNB can release radio and C-plane related resources associated to the UE context. Any ongoing data forwarding may continue.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136300/15.08.00_60/ts_136300v150800p.pdf (Page 115).

54. In view of preceding paragraphs, each and every element of at least claim 1 of the '929 Patent is found in the Accused Products.

55. ZTE has and continues to directly infringe at least one claim of the '929 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale, importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

56. ZTE has received notice and actual or constructive knowledge of the '929 Patent since at least the date of service of this Complaint.

57. Since at least the date of service of this Complaint, through its actions, ZTE has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '929 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://www.zteusa.com/products/all-phones
- https://www.zteusa.com/support_page

- https://www.zte.com.cn/global/about/news/350962.html
- https://www.zteusa.com/products/m2m/zte-me3630
- https://www.zteusa.com/products/all-phones/axon-10-pro.html
- https://www.zte.com.cn/global/products/wireless/201903111103/Macro-Base-Station-Series
- http://www.zte-deutschland.de/pub/endata/magazine/ztetechnologies/2009year/no11/200912/P020091222462632602444.pdf

58. Since at least the date of service of this Complaint, through its actions, ZTE has contributed to the infringement of the '929 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '929 Patent. The Accused Products are especially made or adapted for infringing the '929 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '929 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that ZTE infringes one or more claims of the '929 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that ZTE has induced infringement and continues to induce infringement of one or more claims of the '929 Patent;

(C) Enter judgment that ZTE has contributed to and continues to contribute to the infringement of one or more claims of the '929 Patent;

(D) Award Brazos damages, to be paid by ZTE in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the

infringement by ZTE of the '929 Patent through the date such judgment is entered in accordance with 35 U.S.C. §284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. §284;

(E) Declare this case exceptional pursuant to 35 U.S.C. §285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: November 6, 2020

Respectfully submitted,

/s/ James L. Etheridge

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